

Applicants are submitting a "marked up" copy of the specification which shows the portions of the original specification which are being added and deleted. Additions have been indicated by underlining and deletions have been indicated between brackets.

The enclosed Substitute Specification includes the same changes as are indicated in the marked-up copy of the original specification showing additions and deletions. Furthermore, the enclosed Substitute Specification includes no new matter. Thus, acceptance of the Substitute Specification is respectfully requested.

*NE.* On page 11, line 11, delete "Ois" and substitute therefore --O is--.

*NE.* On page 16, line 19, delete "coorection" and substitute therefore --correction--.

*NE.* On page 18, line 20, delete "618" and substitute therefore --618R--.

*NE.* On page 19, line 29, delete "O" and substitute therefore --O--.

IN THE CLAIMS:

Please delete claims 1-20 and add new claims 21-50.

- 1                    21.    (Newly Added) A facsimile apparatus comprising:
- 2                    a facsimile controller, and a modulator and demodulator for
- 3                    modulating an image data read by said image reader/recorder and for
- 4                    demodulating a modulated image data received from a signal line; wherein said
- 5                    facsimile controller comprising:
- 6                    an image reader/recorder for reading/recording an image,
- 7                    an image data compressor/expander for compressing/expanding an
- 8                    image data,

9 a console including a control panel for instructing operation of said  
10 facsimile controller,

11 a central processing unit for controlling operation of the facsimile  
12 controller; and said modulator and demodulator comprising:

13 memory means for storing an object program containing a plurality  
14 of control procedures each of which executes a successive communication  
15 processes, including a plurality of operational modes,

16 switching means for switching between a plurality of operational  
17 modes responsive to said object program in accordance with a predetermined  
18 unit of the control procedures, and

19 control means for executing the control procedure corresponding to  
20 the operational mode just switched.

21  
22. (Newly Added) A facsimile apparatus of claim 21, wherein  
23 said memory means has a plurality of areas for storing data from said facsimile  
24 controller, said plurality of are as corresponding to a respective plurality of  
25 modes, and when said switching means switches to one of said plurality of  
26 modes, said control means writes the data corresponding to a further one of said  
27 plurality of modes into a different area of said memory means from the area  
28 which stores the data corresponding to a previous mode.

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9 a console including a control panel for instructing operation of said  
10 facsimile controller,

11 a central processing unit for controlling operation of the facsimile  
12 controller; and said modulator and demodulator comprising:

13 memory means for storing an object program containing a plurality  
14 of control procedures,

15 switching means for switching between a plurality of operational  
16 modes responsive to said object program, and

17 control means for executing a respective one of said plurality of  
18 control procedures corresponding to a current one of said plurality of operational  
19 modes,

20 wherein said memory means has a first area for storing a command  
21 from said facsimile controller and a second area for storing data from the  
22 facsimile controller in pairs, each of said pairs corresponding to a respective one  
23 of said modes, said control means is further for transmitting the data stored in  
24 said second area of said memory means to said signal line while inputting a  
25 command for storing from the facsimile controller to the first area corresponding  
26 to said second area, and when completing the transmitting of the data stored in  
27 said second area, said control means determines whether the transmission of the  
28 data from said second area is completed based on the command stored in said  
29 first area.

1 24. (Newly Added) A facsimile apparatus comprising:

2 a facsimile controller, and a modulator and demodulator for  
3 modulating an image data read by said image reader/recorder and for  
4 demodulating a modulated image data received from a signal line; wherein said  
5 facsimile controller comprising:

6 an image reader/recorder for reading/recording an image,

7 an image data compressor/expander for compressing/expanding an  
8 image data,

9 a console including a control panel for instructing operation of said  
10 facsimile controller,

11 a central processing unit for controlling operation of the facsimile  
12 controller; and said modulator and demodulator comprising:

13 memory means for storing an object program containing a plurality  
14 of control procedures,

15 switching means for switching between a plurality of operational  
16 modes responsive to said object program, and

17 control means for executing a respective one of said plurality of  
18 control procedures corresponding to a current one of said plurality of operational  
19 modes,

20 wherein said memory means has a plurality of banks, and also has  
21 a respective plurality of data storage areas for each mode, said plurality of data  
22 storage areas store the data from said facsimile controller in a frame unit into  
23 said plurality of banks.

1 25. (Newly Added) A facsimile apparatus comprising:

2 a facsimile controller, and a modulator and demodulator for  
3 modulating an image data read by said image reader/recorder and for  
4 demodulating a modulated image data received from a signal line; wherein said  
5 facsimile controller comprising:

6 an image reader/recorder for reading/recording an image,

7 an image data compressor/expander for compressing/expanding an  
8 image data,

9 a console including a control panel for instructing operation of said  
10 facsimile controller,

11 a central processing unit for controlling operation of the facsimile  
12 controller; and said modulator and demodulator comprising:

13 memory means for storing an object program containing a plurality  
14 of control procedures,

15 switching means for switching between a plurality of operational  
16 modes responsive to said object program, and

17 control means for executing a respective one of said plurality of  
18 control procedures corresponding to a current one of said plurality of operational  
19 modes,

20 wherein said memory means has a plurality of banks, a respective  
21 plurality of status areas, wherein said plurality of command areas store  
22 information about a respective plurality of operation instructions, and said  
23 plurality of status areas store information showing a respective plurality of buffer  
24 status.

1 26. (Newly Added) A facsimile apparatus of claim 25, wherein  
2 the control means provides an error check of received data from the signal line,  
3 and when an error is detected in the received data, a data-error bit is written into  
4 one of said plurality of status areas, and the received data is deleted from the  
5 respective data storage area.

1 27. (Newly Added) A facsimile apparatus of claim 25, wherein  
2 the buffer status includes one of a Data Full/Empty condition, abort condition  
3 and error condition.

1 28. (Newly Added) A facsimile apparatus comprising:

2 a facsimile controller, and a modulator and demodulator for  
3 modulating an image data read by said image reader/recorder and for

4 demodulating a modulated image data received from a signal line; wherein said  
5 facsimile controller comprising:

6 an image reader/recorder for reading/recording an image,

7 an image data compressor/expander for compressing/expanding an  
8 image data,

9 a console including a control panel for instructing operation of said  
10 facsimile controller,

11 a central processing unit for controlling operation of the facsimile  
12 controller; and said modulator and demodulator comprising:

13 memory means for storing an object program containing a control  
14 process,

15 timer means for monitoring a transition time between a completed  
16 control process and a further control process,

17 means for selecting a control process to be executed in the further  
18 control process during the transition time, and

19 control means for executing the selected control process when the  
20 timer means times out.

1 29. (Newly Added) A facsimile apparatus comprising:

2 a facsimile controller, and a modulator and demodulator for  
3 modulating an image data read by said image reader/recorder and for  
4 demodulating a modulated image data received from a signal line; wherein said  
5 facsimile controller comprising:

6 an image reader/recorder for reading/recording an image,

an image data compressor/expander for compressing/expanding an image data,

a console including a control panel for instructing operation of said facsimile controller,

a central processing unit for controlling operation of the facsimile controller; and said modulator and demodulator comprising:

memory means for storing an object program containing a control procedures,

analysis means for analyzing a received signal,

switching means for switching between a control-channel-mode and main-channel-mode when said analysis means detects a specified signal, and

control means for executing the control procedure corresponding to the operational mode just switched.

30. (Newly Added) A facsimile apparatus comprising:

a facsimile controller, and a modulator and demodulator for modulating an image data read by said image reader/recorder and for demodulating a modulated image data received from a signal line; wherein said facsimile controller comprising:

an image reader/recorder for reading/recording an image,

an image data compressor/expander for compressing/expanding an image data,

a console including a control panel for instructing operation of said facsimile controller,

a central processing unit for controlling operation of the facsimile controller; and said modulator and demodulator comprising:

memory means for storing an object program containing a plurality of control procedures,

analysis means for deframing a received data-frame and analyzing the deframed data-frame,

switching means for switching an operational mode from a main-channel-mode to a control-channel-mode when said analysis means indicates that the received data-frame is an RCP (return to control for partial page) frame, and

control means for executing a procedure corresponding to the mode just switched.

31. (Newly Added) A facsimile apparatus comprising:

a facsimile controller, and a modulator and demodulator for modulating an image data read by said image reader/recorder and for demodulating a modulated image data received from a signal line; wherein said facsimile controller comprising:

an image reader/recorder for reading/recording an image,

an image data compressor/expander for compressing/expanding an image data,

a console including a control panel for instructing operation of said facsimile controller,

a central processing unit for controlling operation of the facsimile controller; and said modulator and demodulator comprising:

memory means for storing an object program containing a plurality of control procedures,



15 analysis means for analyzing the received signal,

16 switching means for switching an operational mode from a control-  
17 channel-mode to a main-channel-mode when said analysis means detects a  
18 control-channel-ending-signal comprising a special pattern never occurred during  
19 data transmitting, and

20 control means for executing a procedure corresponding to the mode  
21 just switched.

1 32. (Newly Added) A facsimile apparatus comprising:

2 a facsimile controller, and a modulator and demodulator for  
3 modulating an image data read by said image reader/recorder and for  
4 demodulating a modulated image data received from a signal line; wherein said  
5 facsimile controller comprising:

6 an image reader/recorder for reading/recording an image,

7 an image data compressor/expander for compressing/expanding an  
8 image data,

9 a console including a control panel for instructing operation of said  
10 facsimile controller,

11 a central processing unit for controlling operation of the facsimile  
12 controller; and said modulator and demodulator comprising:

13 memory means for storing an object program containing a plurality  
14 of control procedures,

15 switching means for switching between a plurality of operational  
16 modes responsive to said object program,

17 control means for executing a respective one of said plurality of  
18 control procedures corresponding to a current one of said plurality of operational  
19 modes,

20 modulating means for outputting a modulated signal to the signal  
21 line,

22 demodulating means for outputting a demodulated signal from a  
23 received signal fed from the signal line,

24 error counting means for counting errors of said demodulated  
25 signal,

26 specifying means for specifying an acceptable maximum error  
27 volume, and

28 further control means for controlling said modulating means to  
29 transmit a retraining signal to the signal line when an error volume counted by  
30 said error counting means exceeds said acceptable maximum error volume.

1 33. (Newly Added) A facsimile apparatus of claim 32, wherein  
2 said acceptable maximum error volume is specified by the facsimile controller.

1 34. (Newly Added) A facsimile apparatus comprising:

2 a facsimile controller, and a modulator and demodulator for  
3 modulating an image data read by said image reader/recorder and for  
4 demodulating a modulated image data received from a signal line; wherein said  
5 facsimile controller comprising:

6 an image reader/recorder for reading/recording an image,

7 an image data compressor/expander for compressing/expanding an  
8 image data,

9 a console including a control panel for instructing operation of said  
10 facsimile controller,

11 a central processing unit for controlling operation of the facsimile  
12 controller; and said modulator and demodulator comprising:

13 memory means for storing an object program containing a plurality  
14 of control procedures,

15 switching means for switching between a plurality of operational  
16 modes responsive to said object program,

17 control means for executing a procedure corresponding to the mode  
18 just switched,

19 transmitting means for transmitting a specified signal to the signal  
20 line,

21 timer means for counting a specified time when said transmitting  
22 means has started to transmit the specified signal,

23 reset means for resetting said timer means when a response signal  
24 to said specified signal is detected from the signal line during the specified time,  
25 and

26 notifying means for notifying the data terminal equipment of an  
27 abnormality when the specified time expires before said response signal is  
28 detected from said signal line.

1 35. (Newly Added) A facsimile apparatus comprising:

2 a facsimile controller, and a modulator and demodulator for  
3 modulating an image data read by said image reader/recorder and for  
4 demodulating a modulated image data received from a signal line; wherein said  
5 facsimile controller comprising:

- 6 an image reader/recorder for reading/recording an image,
- 7 an image data compressor/expander for compressing/expanding an  
8 image data,
- 9 a console including a control panel for instructing operation of said  
10 facsimile controller,
- 11 a central processing unit for controlling operation of the facsimile  
12 controller; and said modulator and demodulator comprising:
- 13 an interface for sending data to and receiving data from the  
14 facsimile controller,
- 15 an encoder for transducing transmitted data into a first signal,
- 16 a modulator for providing a modulation to the first signal,
- 17 a hybrid circuit connected to the signal line for separating  
18 transmitted signals and received signals,
- 19 a demodulator providing a demodulation to convert one of said  
20 received signals into a second signal,
- 21 a judging part for converting said second signal into a third signal,
- 22 a decoder for transuding the third signal from said judging part into  
23 a further received data,
- 24 an error counter which generates an error-signal by using said  
25 second signal and said third signal,
- 26 a calculator for calculating a power of said error-signal, and  
27 outputting a quality signal of the received data, and
- 28 a controller for inputting the following three signals:

- 29 1. the quality signal of the received data from said calculator,  
30 2. a reference signal for determining a retraining control, said  
31 reference signal selected by the facsimile controller,  
32 3. an identifying signal from said demodulator for identifying said  
33 one of said received signals,  
34 said controller generating a control signal for controlling said  
35 modulator.

- 1 36. (Newly Added) A facsimile apparatus comprising:  
2 a facsimile controller, and a modulator and demodulator for  
3 modulating an image data read by said image reader/recorder and for  
4 demodulating a modulated image data received from a signal line; wherein said  
5 facsimile controller comprising:  
6 an image reader/recorder for reading/recording an image,  
7 an image data compressor/expander for compressing/expanding an  
8 image data,  
9 a console including a control panel for instructing operation of said  
10 facsimile controller,  
11 a central processing unit for controlling operation of the facsimile  
12 controller; and said modulator and demodulator comprising:  
13 memory means for storing an object program containing a plurality  
14 of control procedures,  
15 analysis means for deframing a received data-frame and analyzing  
16 the deframed data-frame,

17 switching means for switching an operational mode from a main-  
18 channel-mode to a control-channel-mode when said analysis means indicates that  
19 the received data-frame is an RCP (return to control for partial page) frame, and

20 control means for executing a respective one of said plurality of  
21 control procedures corresponding to a current one of a plurality of operational  
22 modes.

1 37. (Newly Added) A facsimile apparatus comprising:

2 a facsimile controller, and a modulator and demodulator for  
3 modulating an image data read by said image reader/recorder and for  
4 demodulating a modulated image data received from a signal line; wherein said  
5 facsimile controller comprising:

6 an image reader/recorder for reading/recording an image,

7 an image data compressor/expander for compressing/expanding an  
8 image data,

9 a console including a control panel for instructing operation of said  
10 facsimile controller,

11 a central processing unit for controlling operation of the facsimile  
12 controller; and said modulator and demodulator comprising:

13 memory means for storing an object program containing a plurality  
14 of control procedures,

15 analysis means for analyzing a received signal,

16 switching means for switching an operational mode from a control-  
17 channel-mode to a main-channel-mode when said analysis means detects a  
18 control-channel-ending signal comprising a special pattern never occurred during  
19 data transmitting, and

control means for executing a respective one of said plurality of control procedures corresponding to a current one of a plurality of operational modes.

38. (Newly Added) A facsimile apparatus comprising:

a facsimile controller, and a modulator and demodulator for modulating an image data read by said image reader/recorder and for demodulating a modulated image data received from a signal line; wherein said facsimile controller comprising:

an image reader/recorder for reading/recording an image,

an image data compressor/expander for compressing/expanding an image data,

a console including a control panel for instructing operation of said facsimile controller,

a central processing unit for controlling operation of the facsimile controller, and said modulator and demodulator comprising:

memory means for storing an object program containing a plurality of control procedures,

switching means for switching between a plurality of operational modes responsive to said object program,

control means for executing a respective one of said plurality of control procedures corresponding to a current one of a plurality of operational modes,

transmitting means for transmitting a specified signal to a signal line,

22 timer means for counting a specified time when said transmitting  
23 means has started to transmit a specified signal,

24 reset means for resetting said timer means when a response signal  
25 to said specified signal is detected from the signal line during the specified time,  
26 and

27 notifying means for notifying a data terminal equipment of an  
28 abnormality when the specified time expires before said response signal is  
29 detected from said signal line.

1 39. (Newly Added) A facsimile apparatus comprising:

2 a facsimile controller, and a modulator and demodulator for  
3 modulating an image data read by said image reader/recorder and for  
4 demodulating a modulated image data received from a signal line; wherein said  
5 facsimile controller comprising:

6 an image reader/recorder for reading/recording an image,

7 an image data compressor/expander for compressing/expanding an  
8 image data,

9 a console including a control panel for instructing operation of said  
10 facsimile controller,

11 a central processing unit for controlling operation of the facsimile  
12 controller; and said modulator and demodulator comprising:

13 memory means for storing an object program containing a plurality  
14 of control procedures each of which executes a successive communication  
15 processes including a plurality of operational modes,

16 switching means for switching between a plurality of operational  
17 modes responsive to said object program in accordance with a predetermined  
18 unit of the control procedures, and



control means for executing a respective one of said plurality of control procedures corresponding to a current one of the plurality of operational modes.

40. (Newly Added) A facsimile apparatus comprising:

a facsimile controller, and a modulator and demodulator for modulating an image data read by said image reader/recorder and for demodulating a modulated image data received from a signal line; wherein said facsimile controller comprising:

an image reader/recorder for reading/recording an image,

an image data compressor/expander for compressing/expanding an image data,

a console including a control panel for instructing operation of said facsimile controller,

a central processing unit for controlling operation of the facsimile controller, and said modulator and demodulator comprising:

memory means for storing an object program containing a plurality of control procedures each of which executes successive communication processes including a plurality of operational modes,

analysis means for analyzing a received signal,

switching means for switching between a control-channel-mode and main-channel-mode when said analysis means detects a specified signal, and

control means for executing the control procedure corresponding to the operational mode just switched.

41. (Newly Added) A facsimile apparatus comprising:

2 a facsimile controller, and a modulator and demodulator for  
3 modulating an image data read by said image reader/recorder and for  
4 demodulating a modulated image data received from a signal line; wherein said  
5 facsimile controller comprising:

6 an image reader/recorder for reading/recording an image,

7 an image data compressor/expander for compressing/expanding an  
8 image data,

9 a console including a control panel for instructing operation of said  
10 facsimile controller,

11 a central processing unit for controlling operation of the facsimile  
12 controller, and said modulator and demodulator comprising:

13 memory means for storing an object program containing a plurality  
14 of control procedures each of which executes successive communication  
15 processes including a plurality of operational modes,

16 analysis means for analyzing a received signal,

17 switching means for switching between a control-channel-mode and  
18 main-channel-mode when said analysis means detects a specified signal, and

19 control means for executing a respective one of said plurality of  
20 control procedures corresponding to a current one of the plurality of operational  
21 modes.

1 42. (Newly Added) A facsimile apparatus according to claim 21,  
2 wherein said switching means is independent from said facsimile controller.

1 43. (Newly Added) A method for controlling facsimile  
2 communication including a modulator and demodulator for use with a data  
3 terminal equipment and a signal line comprising the steps of:


4                   deframing a received data-frame from the signal line,  
5                   analyzing the deframed data-frame,  
6                   switching an operational mode from a main-channel-mode to a  
7                   control-channel-mode when said analyzing step detects that the received data-  
8                   frame is an RCP (return to control for partial page) frame, and  
9                   executing the control procedure corresponding to the operation  
10                  mode just switched.

1                   44.   (Newly Added) A method for controlling facsimile  
2                   communication including a modulator and demodulator for use with a data  
3                   terminal equipment and a signal line comprising the steps of:  
4                   analyzing the received signal from the signal line,  
5                   switching an operational mode from control-channel-mode to a  
6                   main-channel-mode when said analyzing step detects a control-channel-ending-  
7                   signal comprising a special pattern never occurred during data transmitting, and  
8                   executing the control procedure corresponding to the operation  
9                   mode just switched.

1                   45.   (Newly Added) A method for controlling facsimile  
2                   communication including a modulator and demodulator for use with a data  
3                   terminal equipment and a signal line comprising the steps of:  
4                   switching between a plurality of operational modes responsive to an  
5                   object program,  
6                   executing one of said plurality of control procedures corresponding  
7                   to one of said plurality of operational modes switched to,  
8                   transmitting a specified signal to the signal line,

9 counting a specified time with a timer means,  
10 resetting said timer means when a response signal to said specified  
11 signals is detected from the signal line during the specified time, and  
12 notifying the data terminal equipment of an abnormality when the  
13 specified time expires before said response signal is detected from said signal  
14 line.

1 46. (Newly Added) A method for controlling facsimile  
2 communication including a modulator and demodulator for use with a data  
3 terminal equipment and a signal line and storing an object program containing a  
4 plurality of control procedures each of which executes successive communication  
5 processes including a plurality of operational modes comprising the steps of:

6  switching between a plurality of operational modes responsive to  
7 said object program in accordance with a predetermined unit of the control  
8 procedures, and

9 executing the control procedure corresponding to the operational  
10 mode just switched.

1 47. (Newly Added) A method for controlling facsimile  
2 communication including a modulator and demodulator for use with a data  
3 terminal equipment and a signal line and storing an object program containing a  
4 plurality of control procedures each of which executes successive communication  
5 processes including a plurality of operational modes comprising the steps of:

6 switching between a plurality of operational modes responsive to  
7 said object program in accordance with a predetermined unit of the control  
8 procedures, and

9 executing a respective one of said plurality of control procedures  
10 corresponding to a current one of the plurality of operational modes.

1           48. (Newly Added) A method for controlling facsimile  
2 communication including a modulator and demodulator for use with a data  
3 terminal equipment and a signal line and storing an object program containing a  
4 plurality of control procedures each of which executes successive communication  
5 processes including a plurality of operational modes comprising the steps of:

6           monitoring a transition time between a completed control process  
7 and a further control process with a timer means,

8           selecting a control process to be executed in the further control  
9 process during the transition time, and

10           executing the selected control process when the timer means times  
11 out.

1           49. (Newly Added) A method for controlling facsimile  
2 communication including a modulator and demodulator for use with a data  
3 terminal equipment and a signal line and storing an object program containing a  
4 plurality of control procedures each of which executes successive communication  
5 processes including a plurality of operational modes comprising the steps of:

6           analyzing a received signal from the signal line,

7           switching between a control-channel-mode and main-channel-mode  
8 when said analyzing step detects a specified signal, and

9           executing the control process corresponding to the operational  
10 mode just switched.

1           50. (Newly Added) A method for controlling facsimile  
2 communication including a modulator and demodulator for use with a data  
3 terminal equipment and a signal line and storing an object program containing a  
4 plurality of control procedures each of which executes successive communication  
5 processes including a plurality of operational modes comprising the steps of:

6           analyzing a received signal from a signal line,

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9                   executing a respective one of said plurality of control procedures  
10       corresponding to a current one of the plurality of operational modes.

[illegible]